INTERNATIONAL STANDARD

ISO 3632-1

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Saffron (*Crocus sativus* Linnaeus) —

Part 1:
Specification

*Safran (*Crocus sativus *Linnaeus) —*
Partie 1: Spécifications

Reference number
ISO 3632-1:1993(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 3632-1 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Subcommittee SC 7, *Spices and condiments*.

This first edition of ISO 3632-1, together with ISO 3632-2, cancels and replaces ISO 3632:1980, of which they constitute a technical revision.

ISO 3632 consists of the following parts, under the general title *Saffron (*Crocus sativus *Linnaeus)*:

— *Part 1: Specification*

— *Part 2: Test methods*

Annex A of this part of ISO 3632 is for information only.

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Saffron (*Crocus sativus* Linnaeus) —

Part 1: Specification

1 Scope

This part of ISO 3632 specifies the requirements for saffron obtained from the flowers of *Crocus sativus* Linnaeus.

It is applicable to saffron in either of the following forms:

— in whole filaments as a loose, supple, elastic and hygroscopic mass of filaments, or

— in powder form.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 3632. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 3632 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 928:1980, *Spices and condiments — Determination of total ash.*

ISO 930:1980, *Spices and condiments — Determination of acid-insoluble ash.*

ISO 941:1980, *Spices and condiments — Determination of cold water-soluble extract.*

ISO 948:1980, *Spices and condiments — Sampling.*

ISO 1871:1975, *Agricultural food products — General directions for the determination of nitrogen by the Kjeldahl method.*

ISO 3632-2:1993, *Saffron (Crocus sativus Linnaeus) — Part 2: Test methods.*

ISO 5498:1981, *Agricultural food products — Determination of crude fibre content — General method.*

3 Definitions

For the purposes of this part of ISO 3632, the following definitions apply.

3.1 saffron in filaments: Stigmas of *Crocus sativus* Linnaeus, dried, dark red in colour and trumpet shaped, serrated or indented at the distal end. The length is between 20 mm and 40 mm. The stigmas may be isolated or joined in twos or threes at the end of a portion of the style which is white/yellow in colour. (See figure 1.)

3.2 saffron in cut filaments: Stigmas of *Crocus sativus* Linnaeus with styles removed and completely detached from each other.

3.3 yellow filaments: Dried yellow stamens of the flowers of *Crocus sativus* Linnaeus.

3.4 floral waste: Yellow filaments that are unattached and separated, pollens, stamens, parts of ovaries and other parts of the flower of *Crocus sativus* Linnaeus. (See figure 2.)

3.5 extraneous matter: Leaves, stems, chaff and other vegetable matter. The only mineral matter permitted is sand, earth and dust.

3.6 saffron in powder: Saffron obtained by crushing the filaments.

4 Specification

4.1 Classification of saffron in filaments

Saffron in filaments is classified into four categories, as shown in table 1, on the basis of its floral waste and extraneous matter contents, which shall be determined according to the methods specified in ISO 3632-2:1993, clauses 6 and 7.

Table 1 — Classification of saffron in filaments

Characteristic	Categories			
	Extra I	II	III	IV
Floral waste, % (*m/m*), max.	0,5	4	7	10
Extraneous matter, % (*m/m*), max.	0,1	0,5	1,0	1,0

NOTE — See annex A for the main producing countries and the most common commercial names.

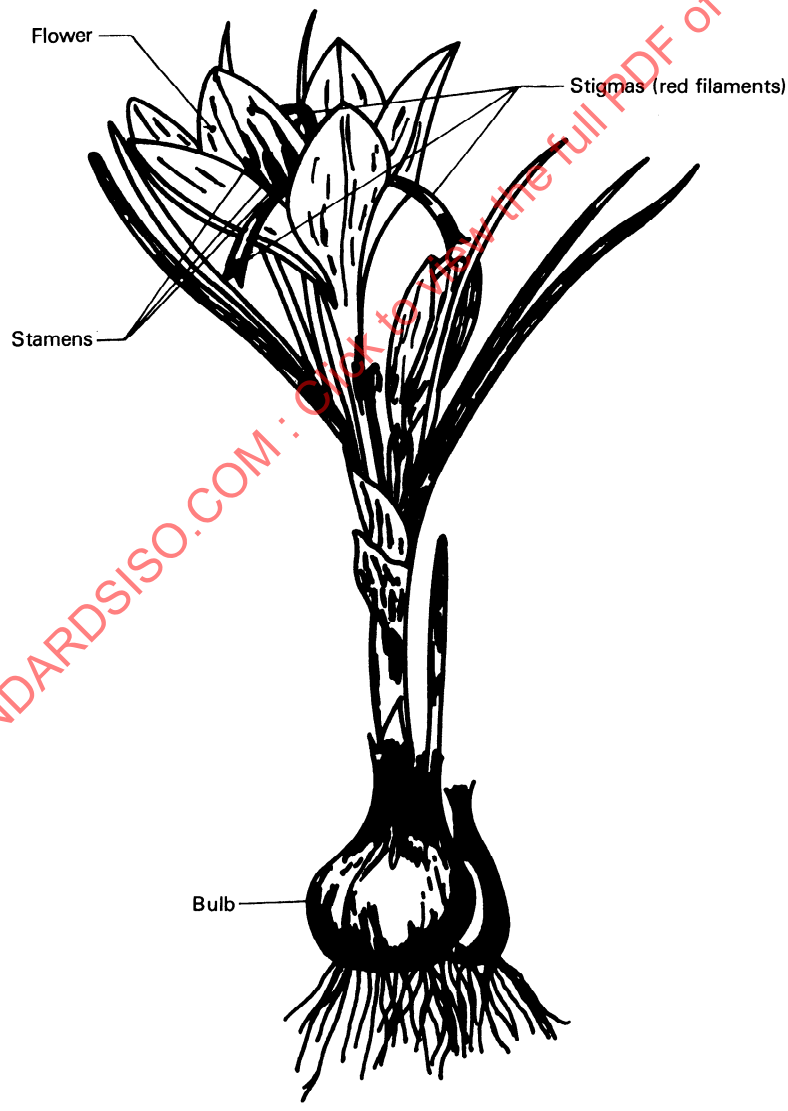

Figure 1 — Saffron crocus (*Crocus sativus* Linnaeus) — Whole plant

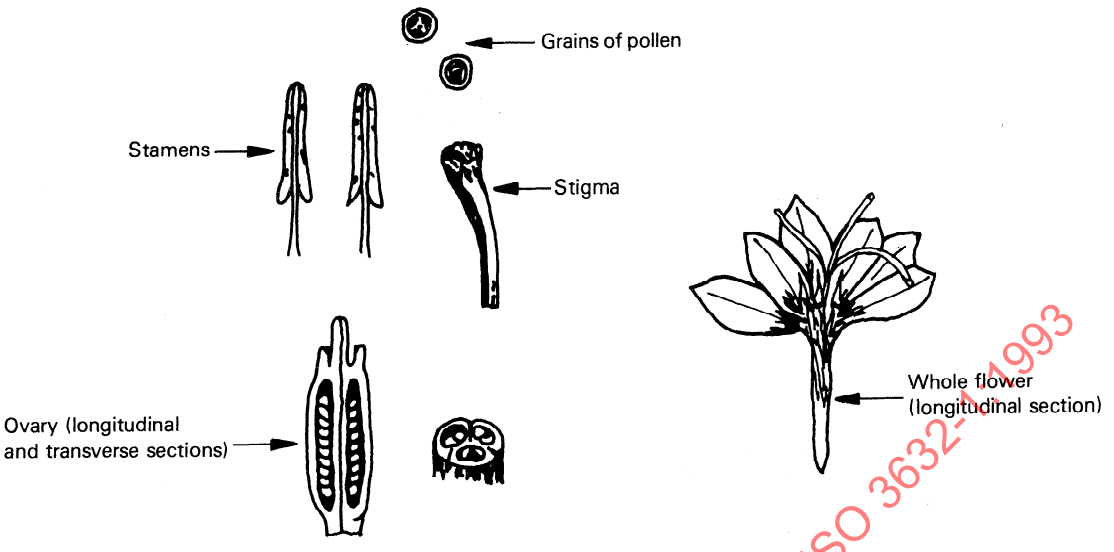

Figure 2 — Saffron crocus (*Crocus sativus* Linnaeus) — Flower

4.2 Flavour

The flavour of saffron shall be specific, slightly bitter and slightly pungent.

The product shall be free from foreign flavours.

4.3 Freedom from moulds, insects, etc.

Saffron shall be free from living insects, and shall be practically free from moulds, dead insects, insect fragments and rodent contamination visible to the naked eye (corrected, if necessary, for abnormal vision) or using the required magnifying instrument in certain particular cases. If the magnification exceeds ×10, this fact shall be mentioned in the test report.

4.4 Chemical requirements

Saffron, in filaments or in powder form, shall comply with the requirements specified in table 2.

Saffron, in filaments or in powder form, when examined by the method specified in ISO 3632-2:1993, clause 13, shall not show the presence of pigments and/or organic matter other than those which are peculiar to saffron.

5 Sampling

Sampling of the saffron, in filaments or in powder form, shall have been carried out as specified in ISO 948.

6 Preparation of test sample

Prepare the test sample in accordance with the method specified in ISO 3632-2:1993, clause 4.

The minimum mass of the laboratory sample shall be 10 g, whether it is for whole saffron or for saffron in powder form. This is sufficient for the tests to be carried out in duplicate.

NOTE 1 If additional tests are desired (total nitrogen and crude fibre content), a larger sample will be required.

Carry out the tests as quickly as possible after the preparation, **scrupulously following the order indicated in ISO 3632-2:1993, table 1 or 2**, depending on whether the saffron is in filaments or in powder form.

7 Test methods

An analysis shall be carried out on the saffron samples to ensure that they are in accordance with the specifications of this part of ISO 3632 following the methods of physical and chemical analysis referred to in subclauses 4.1 and 4.4, clauses 6 and 7, and table 2.

In the case of saffron in powder form, carry out an identification test and a microscopic examination in accordance with ISO 3632-2:1993, clauses 5 and 8.

Table 2 — Chemical requirements for saffron, in filaments or in powder form

Characteristic	Requirement		Test method
	Saffron in filaments	Saffron in powder form	
Moisture and volatile matter, % (*m/m*), max.	12	10	ISO 3632-2, clause 9
Total ash, % (*m/m*), on dry basis, max.	8	8	ISO 928 and ISO 3632-2, clause 10
Acid-insoluble ash, % (*m/m*), on dry basis, max.			ISO 930 and ISO 3632-2, clause 11
Categories I and II	1,0	1,0	
Categories III and IV	1,5	1,5	
Solubility in cold water, % (*m/m*), on dry basis, max.	65	65	ISO 941
Bitterness, expressed as direct reading of the absorbance of picrocrocine at about 257 nm, on dry basis, min.			ISO 3632-2, clause 13
Category I	70	70	
Category II	55	55	
Category III	40	40	
Category IV	30	30	
Safranal, expressed as direct reading of the absorbance at about 330 nm, on dry basis			ISO 3632-2, clause 13
All categories			
min.	20	20	
max.	50	50	
Colouring strength, expressed as direct reading of the absorbance of crocine at about 440 nm, on dry basis, min.			ISO 3632-2, clause 13
Category I	190	190	
Category II	150	150	
Category III	110	110	
Category IV	80	80	
Total nitrogen, % (*m/m*), on dry basis, max.[1]	3,0	3,0	ISO 1871
Crude fibre, % (*m/m*), on dry basis, max.[1]	6	6	ISO 5498

1) Additional tests which may be carried out if necessary, if sufficient sample is available.

8 Packing and marking

8.1 Packing

Saffron, in filaments or in powder form, shall be packed in rigid, water-tight, clean, sound containers, which shall be of a material that will not influence the saffron.

8.2 Marking

8.2.1 Saffron in filaments

The following special indications shall be marked on each package to be dispatched, or on a label:

a) commercial name, botanical name and presentation;

b) name and address of the producer or packer and, if need be, the mark;

c) batch or code number;

d) net mass;

e) category of the product;

f) name of the producing country; and, possibly

g) any other information asked for by the buyer, such as the year of harvest and the date of packing (if known);

h) reference to this part of ISO 3632.

8.2.2 Saffron in powder form

The indications a) to e) given in 8.2.1 shall be marked on each unitary container. If glass containers are used, the words "Fragile — Glass" shall be marked on each package to be dispatched.

Annex A
(informative)

Main producing countries and the most common commercial names

Spain

Extra cut
Mancha
Rio
Sierra

India

Mongra
Lacha

Greece

Red saffron

Pakistan

Iran

Grade A
Grade B

Morocco

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